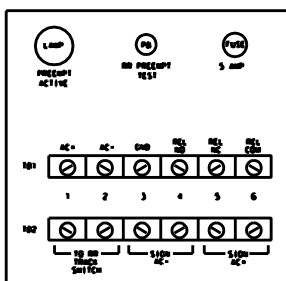


## B NOTES

1. RELAY K1 IS SHOWN IN THE ENERGIZED STATE. (PREEMPT NOT ACTIVE) NORMAL OPERATION STATE.
2. RELAY K1 IS A POTTER & BRUMFIELD KRP11AG DPDT RELAY WITH 120VAC COIL AND OCTAL BASE.
3. RELAY SSR1 IS A CRYDOM TAI225 SPST (NORMALLY OPEN) SOLID STATE RELAY WITH AC INPUT AND AC (25 AMP) OUTPUT. DDT MATERIAL# 625828748.
4. AC ISOLATOR CARD SHALL ACTIVATE PREEMPTION UPON REMOVAL OF AC+ FROM THE INPUT (AS SHOWN ABOVE).
5. RESISTOR IS VALUED AT 2K OHM, 1/2 WATT, CLAROSTAT PART NO. VPR10F-2K; DDT MATERIAL# 6258011558.
6. RC NETWORK IS VALUED AT .1 MICROFARAD, 100 OHM.
7. IF REPLACEMENT MOV'S ARE NEEDED, CE PART NO. V150LA28A (DDT MATERIAL# 106823975) MAY BE USED.
8. PREEMPTION AND BLANKOUT SIGN CONTROL BOX IS A CONTROL TECHNOLOGIES PART NO. 2299-101. DDT MATERIAL# 619833458.
9. IMPORTANT!! A JUMPER MUST BE ADDED BETWEEN INPUT FIELD TERMINALS J14-E AND J14-K IF NOT ALREADY PRESENT. ALSO, TERMINAL T89-12 (ON INPUT PANEL) SHALL BE CONNECTED TO AC NEUTRAL. JUMPER MAY HAVE TO BE ADDED.

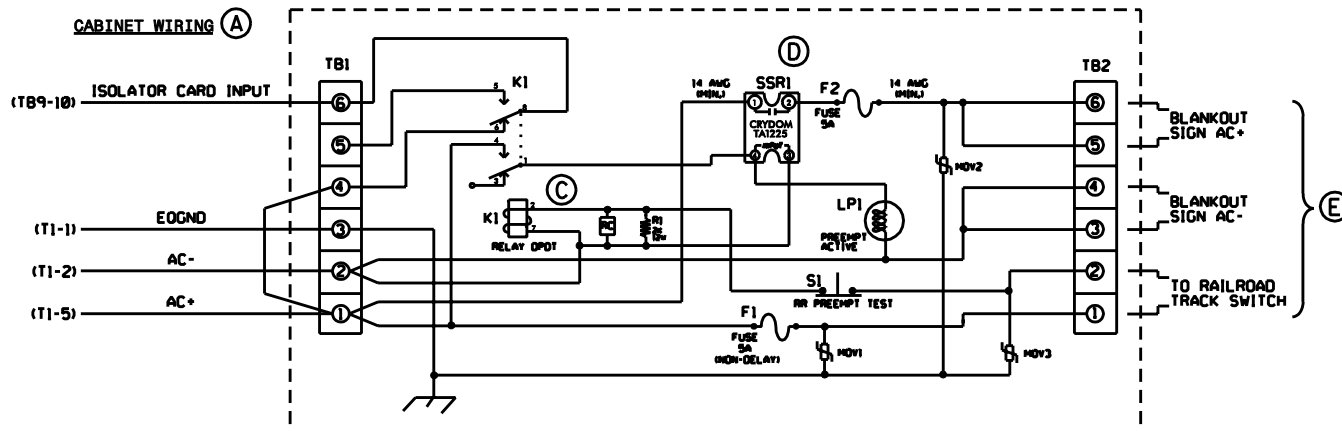
### FRONT VIEW



THIS NOTE INDICATES THAT THE AC ISOLATOR CARD IS TO BE SET-UP FOR INVERTED INPUT OPERATION. INVERTED OPERATION REQUIRES THAT AC+ BE REMOVED FROM THE ISOLATOR INPUT IN ORDER FOR AN OUTPUT TO BE GENERATED, THUS PROVIDING 'FAILSAFE' OPERATION. INVERTED OPERATION IS SET ON THE AC ISOLATOR CARD VIA DIP SWITCH.

THIS NOTE EXPLAINS THE NEED OF AC NEUTRAL TO BE SUPPLIED TO ONE OF THE INPUT TERMINATIONS OF THE AC ISOLATOR CARD. THE AC ISOLATOR CARD WILL NOT FUNCTION IF AC NEUTRAL IS NOT PRESENT ON THE TERMINALS LISTED.

## PREEMPTION AND BLANKOUT SIGN CONTROL BOX



### EXPLANATION OF MAJOR COMPONENTS:

- A** CABINET WIRING TERMINATION POINTS - TELLS THE INSTALLER WHERE TO MAKE THE CONNECTIONS IN ORDER TO INTERFACE THE BOX WITH THE CABINET. THESE CONNECTIONS SUPPLY AC POWER TO THE BOX, AS WELL AS TIE THE PREEMPT RELAY OUTPUT TO AN AC ISOLATOR.
- B** NOTES SECTION - DESCRIBES THE COMPONENT TYPES AND PART NUMBERS USED IN THE BOX. ANY SPECIAL WIRING INSTRUCTIONAL NOTES ARE PLACED HERE. NOTICE THAT THE NOTES SHOWN ARE FOR STATE SUPPLIED PROJECTS. IF PROJECT CALLS FOR CONTRACTOR SUPPLIED EQUIPMENT, GENERIC NOTES ARE USED.
- C** PREEMPT RELAY - THE COIL OF THIS RELAY (K1) IS TIED TO THE RR CABINET CONTACTS WHICH, WHEN OPENED, INDICATE THE PRESENCE OF A TRAIN. WHEN THE RR CONTACTS OPEN, THIS RELAY DE-ENERGIZES AND REMOVES AC+ FROM THE ISOLATOR CARD, THUS CAUSING A PREEMPT INPUT TO BE PLACED ON THE CONTROLLER. THE OTHER SET OF CONTACTS ON THIS RELAY CAUSE AC+ TO BE APPLIED TO THE INPUT OF SSR1 (WHICH ILLUMINATES THE BLANKOUT SIGNS).
- D** BLANKOUT SIGN RELAY - THIS RELAY IS A SPST, SOLID STATE RELAY WHICH CONTROLS THE ILLUMINATION OF THE BLANKOUT SIGNS, WHEN THIS RELAY IS ACTIVATED BY THE PREEMPT RELAY (K1) THE SIGNS WILL BE SWITCHED "ON".
- E** FIELD WIRING TERMINATION POINTS - TELLS THE INSTALLER WHERE THE CONNECTIONS ARE MADE IN ORDER TO INTERFACE THE PREEMPT BOX WITH THE RR CROSSING SIGNAL EQUIPMENT. TERMINATIONS FOR BLANKOUT SIGN AC+ AND AC- ARE INCLUDED HERE AS WELL.

## 2070 PREEMPTION AND BLANKOUT SIGN CONTROL BOX

THE 2070 PREEMPTION AND BLANKOUT SIGN CONTROL ASSEMBLY/BOX PROVIDES THE FOLLOWING FUNCTIONALITY:

1. PROVIDES THE INTERFACE BETWEEN THE RAILROAD CROSSING SIGNAL EQUIPMENT AND THE TRAFFIC SIGNAL EQUIPMENT, WHICH INCLUDES, TERMINATION POINTS FOR THE INTERCONNECT CABLE, LIGHTNING PROTECTION, AND TERMINATION POINTS FOR BLANKOUT SIGNS.
2. PROVIDES AN OUTPUT WHICH DIRECTS THE CONTROLLER TO BEGIN THE PREEMPTION SEQUENCE. A TEST SWITCH IS PRESENT TO MANUALLY TEST THIS OUTPUT.
3. PROVIDES THE CONTROL CIRCUITRY FOR THE OPERATION OF ANY BLANKOUT SIGNS REQUIRED BY THE PREEMPTION SEQUENCE. THIS CIRCUITRY ALLOWS THE BLANKOUT SIGNS TO OPERATE NORMALLY, EVEN WHEN CABINET IS IN THE FLASH MODE.

## 2070 Preemption and Blankout Sign Control Box

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## PREEMPTION PROGRAMMING DETAIL

### PREEMPTION PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 'A' (PREEMPTION), THEN '1' (STANDARD PREEMPTION).

PREEMPTION #1				SETTINGS (NEXT:1-10)															
INTERVAL/TIMING				CLEAR/DWELL PHASES															
GRN	YEL	RED		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	12	4.0	3.5	x															
2	255	0.0	0.0																
3	0	0.0	0.0																
4	0	0.0	0.0																
5	1	0.0	0.0	x															
EXIT CALLS																			
OPTIONS																			
PRIORITY (Y/N TO SELECT) .....				HIGH															
DELAY TIMER (0-255 SEC) .....				0															
MIN GREEN BEFORE PRE (0= DEFAULT)....				1															
PED CLEAR BEFORE PRE (0= DEFAULT)....				0															
YELLOW CLEAR BEFORE PRE (0= DEFAULT)....				4.0															
RED CLEAR BEFORE PRE (0= DEFAULT)....				3.5															
DWELL MIN TIMER (0-255 SEC) .....				7															
DWELL MAX TIMER (0-OFF,1-255MIN) ....				0															
DWELL HOLD-OVER TIMER (0-255) .....				0															
LATCH CALL? .....				N															
LINK TO NEXT PREEMPT? .....				N															
ENABLE BACKUP PROTECTION? .....				N															
HOLD CLEAR 1 PHASES DURING DELAY? ...				N															
FAST GREEN FLASH DWELL PHASES? .....				N															
PED CLEARANCE THROUGH YELLOW? .....				N															
INHIBIT OVERLAP GREEN EXTENSION? ....				N															
SERVICE DURING SOFTWARE FLASH? .....				N															
REST IN RED DURING DWELL INTERVAL? ..				N															
FLASH DWELL INTERVAL? .....				N															
ALLOW PEDS IN DWELL INTERVAL? .....				N															
RE-TIME DWELL INTERVAL? .....				N															
OVERLAPS:				ABCDEFGHIJKLMN															
DWELL INT FLASH YELLOW																			
OMIT OVERLAPS:																			

THE IMAGE TO THE LEFT IS AN EXACT DUPLICATION OF THE PREEMPT PROGRAMMING DISPLAY FOUND ON A 2070 CONTROLLER RUNNING OASIS CONTROL SOFTWARE.

WHEN A SIGNAL PLAN REQUIRES PREEMPTION, THIS DETAIL IS TO BE USED ON THE ELECTRICAL DETAIL TO INSTRUCT THE INSTALLER ON SETTING THE DIFFERENT OPERATIONAL PARAMETERS REQUIRED TO OPERATE THE PREEMPT SEQUENCE PER THE SIGNAL DESIGN PLANS.

BELOW IS A BRIEF DESCRIPTION OF THE MOST COMMONLY USED FEATURES:

- Ⓐ **INTERVAL PROGRAMMING** - THIS IS THE SECTION IN WHICH INTERVAL PHASE SELECTION AND TIMING ARE PROGRAMMED. EACH INTERVAL CONSISTS OF GREEN, YELLOW CLEAR, AND RED CLEAR TIMES. A SECTION WHERE PHASES ARE SELECTED FOR EACH INTERVAL ARE POSITIONED TO THE RIGHT OF EACH SET OF TIMINGS. AN INTERVAL TIME OF 255 SEC. IS A SPECIAL FLAG TO THE CONTROLLER INSTRUCTING IT TO USE THAT INTERVAL AS THE "DWELL" INTERVAL. THE EXIT INTERVAL IS DESIGNATED WHEN A 1 SEC. GREEN IS SELECTED FOLLOWING THE DWELL INTERVAL. ALWAYS USE INTERVAL 5 AS THE EXIT INTERVAL.
  - DWELL INTERVAL - THE DWELL INTERVAL IS THE INTERVAL THAT THE CONTROLLER WILL REST IN UNTIL THE FOLLOWING TWO EVENTS OCCUR:
    1. THE DWELL MINIMUM TIMER HAS EXPIRED, AND
    2. THE PREEMPT CALL IS REMOVED.
- Ⓑ **PRIORITY SETTINGS** - THERE ARE FOUR PRIORITY SETTINGS:
  1. OFF - INDICATES THE PREEMPTOR IS NOT USED.
  2. LOW - USE FOR LOW PRIORITY PREEMPTS SUCH AS TRANSIT VEHICLE PREEMPTS.
  3. MED - USE FOR EMERGENCY VEHICLE PREEMPTS.
  4. HIGH - USE FOR RAILROAD PREEMPTS.

RAILROAD PREEMPT SHOULD ALWAYS BE SET TO BE THE HIGHEST PRIORITY. IF MULTIPLE PREEMPTS ARE SET TO THE SAME PRIORITY, PREEMPTS WILL BE SERVED ON A FIRST COME, FIRST SERVED BASIS.
- Ⓒ **DWELL HOLD-OVER TIMER** - THIS TIMER BEGINS TO TIME AFTER THE PREEMPT CALL IS REMOVED. IF THIS TIMER EXPIRES, THE DWELL INTERVAL WILL BE RELEASED. IF THIS TIMER DOES NOT EXPIRE BEFORE A SECOND PREEMPT CALL IS RECEIVED, THE DWELL INTERVAL WILL BE RETIMED. NORMALLY USED WITH VEHICLE INITIATED EV PREEMPTION SYSTEMS.
- Ⓓ **LATCH CALL** - USED IN CONJUNCTION WITH THE DELAY TIMER. THE APPLICATION FOR THIS FEATURE IS NORMALLY THE FIRE HOUSE, PUSHBUTTON STYLE OF PREEMPT. THESE TYPES OF PREEMPT NORMALLY HAVE A DELAY INTERVAL. THIS FEATURE WILL ALLOW THE PREEMPT CALL TO LATCH AND NOT RELEASE UNTIL THE PREEMPT IS SERVED.
- Ⓔ **HOLD CLEAR 1 PHASES DURING DELAY** - THIS FEATURE IS USED IN CONJUNCTION WITH THE DELAY INTERVAL. IF CLEAR 1 PHASES ARE USED IN NORMAL OPERATION, AND THOSE PHASES JUST HAPPEN TO BE SERVED DURING THE DELAY INTERVAL, THIS FEATURE WILL APPLY A HOLD ON THE CLEAR 1 PHASES DURING THE REMAINDER OF THE DELAY INTERVAL.

(CONTINUED ON NEXT PAGE)

## 2070 OASIS Preemption Programming Detail

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## PREEMPTION PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 'A' (PREEMPTION), THEN '1' (STANDARD PREEMPTION).

PREEMPTION #1				SETTINGS (NEXT:1-10)															
INTERVAL/TIMING				CLEAR/DWELL PHASES															
GRN	YEL	RED		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	12	4.0	3.5																
2	255	0.0	0.0																
3	0	0.0	0.0																
4	0	0.0	0.0																
5	1	0.0	0.0																

EXIT CALLS		OPTIONS	
PRIORITY (Y/N TO SELECT) .....	HIGH		
DELAY TIMER (0-255 SEC) .....	0		
MIN GREEN BEFORE PRE (0= DEFAULT)...	1		
PED CLEAR BEFORE PRE (0= DEFAULT)...	0		
YELLOW CLEAR BEFORE PRE (0= DEFAULT)...	4.0		
RED CLEAR BEFORE PRE (0= DEFAULT)...	3.5		
DWELL MIN TIMER (0-255 SEC) .....	7		
DWELL MAX TIMER (0=OFF,1-255MIN) ....	0		
DWELL HOLD-OVER TIMER (0-255) .....	0		
LATCH CALL? .....	N		
LINK TO NEXT PREEMPT? .....	N		
ENABLE BACKUP PROTECTION? .....	N		
HOLD CLEAR 1 PHASES DURING DELAY? ...	N		
FAST GREEN FLASH DWELL PHASES? .....	N		
PED CLEARANCE THROUGH YELLOW? .....	N		
INHIBIT OVERLAP GREEN EXTENSION? ....	N	(F)	
SERVICE DURING SOFTWARE FLASH? .....	N		(G)
REST IN RED DURING DWELL INTERVAL? ...	N	(H)	
FLASH DWELL INTERVAL? .....	N		
ALLOW PEDS IN DWELL INTERVAL? .....	N		
RE-TIME DWELL INTERVAL? .....	N		(I)
OVERLAPS: .....	ABCDEFGHIJKLMN		
DWELL INT FLASH YELLOW .....			
OMIT OVERLAPS: .....			(J)

## PREEMPTION PROGRAMMING DETAIL (continued)

- (F) INHIBIT OVERLAP GREEN EXTENSION - AFFECTS HOW GREEN EXTENSION OVERLAPS (a.k.a. timed overlaps) TRANSITION INTO PREEMPTION. IF A GREEN EXTENSION OVERLAP WILL NOT BE USED IN THE PREEMPTION, THIS SETTING IS TYPICALLY "YES", THIS WILL INHIBIT THE OVERLAP GREEN EXTENSION FROM TIMING AND ALLOW TRANSITION TO PREEMPTION TO BE ACCOMPLISHED IN THE QUICKEST POSSIBLE TIME. THIS IS MOST IMPORTANT IN RR PREEMPTION APPLICATIONS. IF THE OVERLAP IS USED IN THE FIRST INTERVAL OF THE PREEMPT, THE SETTING SHOULD BE PROGRAMMED AS "NO".
- (G) SERVICE DURING SOFTWARE FLASH - THIS FEATURE IS NORMALLY USED IN CONJUNCTION WITH EV PREEMPTION. THIS ALLOWS THE CONTROLLER TO COME OUT OF LATE NIGHT FLASH IN ORDER TO SERVE EV PREEMPT.
- (H) REST IN RED DURING DWELL INTERVAL - IF THE SIGNAL PLAN CALLS FOR THE PREEMPT DWELL TO BE AN ALL RED REST STATE, THIS FEATURE SHOULD BE ENABLED. IN ADDITION, DO NOT SELECT ANY PHASES FOR THE DWELL INTERVAL.
- (I) RE-TIME DWELL INTERVAL - USED IN CONJUNCTION WITH DWELL HOLD-OVER TIMER. ALLOWS THE CONTROLLER TO RE-TIME THE DWELL INTERVAL IF A SECOND PREEMPT CALL IS RECEIVED BEFORE THE HOLD-OVER TIMER TIMES OUT. NORMALLY USED WITH EV PREEMPTION. DO NOT USE THIS FEATURE WITH RAILROAD PREEMPTION UNLESS THERE ARE SPECIAL CIRCUMSTANCES.
- (J) OMIT OVERLAPS - THIS FEATURE ALLOWS OVERLAPS TO BE OMITTED DURING PREEMPTION WHEN THE OVERLAP PARENTS ARE ACTIVE DURING PREEMPT, BUT THE OVERLAP IS NOT DESIRED. OVERLAPS WILL RETURN DURING EXIT INTERVAL 5.

NOTE: DESCRIPTION OF FEATURES IS NOT COMPLETE, THIS SECTION IS INTENDED TO ADDRESS APPLICATIONAL USE. CONSULT THE SIGNALS AND GEOMETRICS SECTION OF THIS DESIGN MANUAL AND/OR ECONOLITE OASIS MANUAL FOR MORE DETAILS.

## 2070 OASIS Preemption Programming Detail

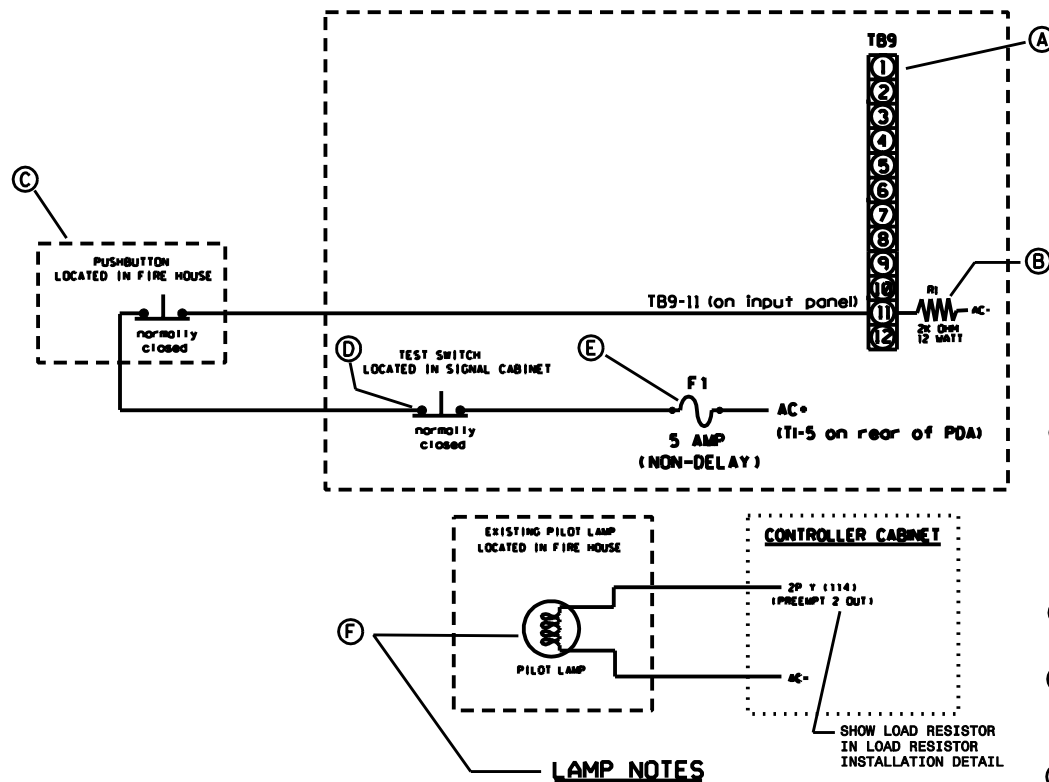
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IN ORDER FOR THE PILOT LAMP IN THE FIRE HOUSE TO FUNCTION, MAKE THE FOLLOWING PROGRAMMING CHANGES TO OUTPUT NO. 33:

1. CHANGE THE FUNCTION OF C1 PIN 35 TO BE AN OUTPUT FOR PREEMPT 2. THIS IS ACCOMPLISHED BY THE FOLLOWING:
  - A) FROM MAIN MENU SELECT 6 (OUTPUTS), THEN SELECT 1 (OUTPUT ASSIGNMENTS).
  - B) SCROLL TO C1 PIN 35, OUTPUT NO. 33. YOU WILL SEE THAT IT IS NOT ENABLED.
  - C) SCROLL DOWN TO PREEMPT AND INPUT "YES". YOU WILL THEN BE ASKED FOR A PREEMPT NO. ENTER A "2" HERE.
  - D) THE OUTPUT IS NOW ASSIGNED FOR PRE-2 OUTPUT.
2. IF TERMINAL 114 HAS A CONFLICT MONITOR WIRE CONNECTED, REMOVE, TAPE AND LABEL WIRE.
3. MAKE SURE LOAD RESISTORS ARE IN PLACE AS SHOWN IN LOAD RESISTOR INSTALLATION DETAIL.
4. INSERT LOADSWITCH FOR S2P.

IF THE PED MOVEMENT ASSOCIATED WITH THE LOADSWITCH BEING USED TO OPERATE THE LAMP IS NOT USED A LOAD RESISTOR WILL HAVE TO BE PLACED ON THE PED WALK FIELD TERMINAL TO DRAIN OFF LOADSWITCH LEAKAGE CURRENT. THIS RESISTOR IS SHOWN IN THE LOAD RESISTOR INSTALLATION DETAIL.

## EMERGENCY VEHICLE PREEMPTION PUSHBUTTON AND INDICATOR LAMP WIRING DETAIL

THIS WIRING DETAIL GIVES THE INSTALLER THE INFORMATION NEEDED TO INTERFACE THE CONTROLLER/CABINET ASSEMBLY WITH A FIREHOUSE PUSHBUTTON. THE FUNCTION OF THIS BUTTON IS TO GENERATE A CONTROLLER INPUT TO INITIATE THE EV PREEMPTION SEQUENCE.

USUALLY, THERE IS ALSO AN INDICATOR (PILOT) LAMP INSTALLED IN THE FIREHOUSE. THE PURPOSE OF THIS LAMP IS TO GIVE THE USER POSITIVE FEEDBACK FROM THE CONTROLLER THAT THE TRAFFIC SIGNAL HAS BEEN PREEMPTED. THE WIRING FOR THE INDICATOR LAMP IS ALSO SHOWN ON THIS DETAIL.

### MAJOR COMPONENTS:

- A) TB9 - SHOWN IS AN ACTUAL CALTRANS STANDARD TERMINAL BLOCK LOCATED ON THE INPUT PANEL OF THE 332 CABINET. THE CONNECTIONS SHOWN ON TB9 CONFIGURES INPUT FILE POSITION J14-L TO GENERATE THE PREEMPT INPUT. PLEASE NOTE THAT A 336 CABINET'S TERMINALS WOULD BE DIFFERENT. INPUT FILE POSITION J14-L OPERATES PREEMPT 2 IN THE OASIS DEFAULT PROGRAM.
- B) LOAD RESISTOR - THIS RESISTOR WILL DRAIN OFF ANY INDUCED VOLTAGE, WHICH IS LIKELY ON A LONG RUN OF CABLE.
- C) FIREHOUSE PUSHBUTTON - THIS IS A MOMENTARY, NORMALLY CLOSED, PUSHBUTTON SWITCH. THE CONTACTS OF THIS SWITCH ARE OPENED WHEN THE BUTTON IS PRESSED, CAUSING PREEMPT TO BE ACTIVATED.
- D) CABINET TEST SWITCH - THIS IS A MOMENTARY, NORMALLY CLOSED, PUSHBUTTON SWITCH LOCATED IN THE SIGNAL CABINET. THIS SWITCH IS USED FOR TEST PURPOSES TO ALLOW THE TECHNICIAN TO SIMULATE THE ACTUATION OF THE FIREHOUSE PUSHBUTTON.
- E) FUSE - THIS 5 AMP NON-DELAY TYPE FUSE IS FOR OVERCURRENT PROTECTION ON THE INTERCONNECT CIRCUIT. NOTICE THAT 120VAC IS USED ON THE INTERCONNECT FROM THE CABINET TO THE FIREHOUSE.
- F) INDICATOR LAMP - THE FUNCTION OF THIS LAMP IS DESCRIBED ABOVE. THIS LAMP IS NORMALLY CONTROLLED BY THE YELLOW CIRCUIT OF A PEDESTRIAN LOADSWITCH. THE C1-PIN ASSOCIATED WITH THIS PED YELLOW WILL HAVE TO BE CHANGED TO OPERATE THIS LAMP CORRECTLY. A LOAD RESISTOR IS NORMALLY TIED IN PARALLEL WITH THE LAMP TO DRAIN OFF ANY INDUCED VOLTAGE. SPECIAL PROGRAMMING NOTES ARE NECESSARY TO ALERT THE INSTALLER OF THESE CHANGES. IF DELAY BEFORE PREEMPT INTERVAL IS USED, SPECIAL LOGIC PROCESSOR PROGRAMMING IS NECESSARY FOR PROPER OPERATION.

## Emergency Vehicle Preemption (Pushbutton Style) Wiring Detail

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